



NBII Wildlife Disease Information Node

The node will provide information and links to information on wildlife health and wildlife-human-domestic animal disease interactions.

Background

The National Biological Information Infrastructure (NBII) <www.nbii.gov> is an electronic information network that provides access to biological data and information on our nation's plants, animals, and ecosystems. Data and information maintained by federal, state, and local government agencies; non-government organizations; and private-sector organizations are linked through the NBII gateway and made accessible to a variety of audiences including researchers, natural resource managers, decision-makers, educators, students, and other private citizens.

Implementation of the NBII is being accomplished through the development of nodes that serve as entry points to the NBII and the information held by partners. These nodes function as fully digital, distributed, and interactive systems that focus on developing, acquiring, and managing content on a defined subject area or a geographic region. Of the NBII nodes now in operation or in the advanced stages of development, none examines the need for information on a variety of wildlife diseases and their implications, including those affecting wildlife and humans. The prototype



1974 duck plague mortality at Lake Andes.

NBII Wildlife Disease Information Node (WDIN) will address that need.

Issue

Disease has long been recognized as one of the potentially limiting factors on wildlife populations. Now, the rapid spread of established diseases; the emergence of new diseases in humans, domestic animals, and wildlife; and the threats of bioterrorist attacks have attracted considerable public attention, as well as generated a call for action. In addition, convincing evidence has been presented advocating the usefulness of wildlife as sentinels for public and domestic animal health threats. Emerging zoonotic diseases (transmissible between animals and humans) have been identified as significant public health threats.

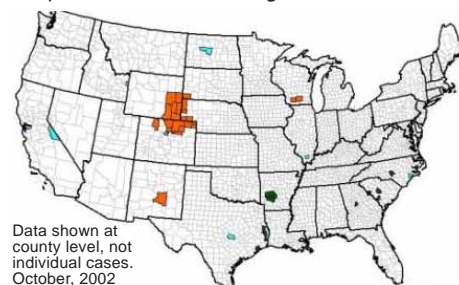
Further, animal disease can be included as one of the threats to global biodiversity. International trade in animal and plant species (including invasive pathogens), human population increases, and reduced wildlife habitat all create situations in which disease outbreaks may occur with increased frequency. Additionally, intermingling of livestock and wildlife creates new opportunities for disease transmission. Recent outbreaks of Chronic Wasting Disease (CWD), West Nile Virus, and House Finch Mycoplasmosis are notable examples of diseases of concern.

The Node

Few wildlife disease databases exist on a national or international scale. Further, *no* central database or information system exists for common access to geospatial wildlife disease information, which hampers rapid identification and response to disease outbreaks.

The Wildlife Disease Information Node will develop a Web-based monitoring and information system, providing state and federal resource managers, animal disease specialists, veterinary diagnostic laboratories, physicians, public health workers, educators, and the general public with access to near real-time data on wildlife mortality events and other critical related information. While this node will be initially located at the USGS National Wildlife Health Center (NWHC) in Madison, WI, the node will be decentralized and eventually incorporate data holdings on geographically dispersed servers. This information system can be used to both visualize clusters of morbidity/mortality events and track the spread of various diseases. Additionally, the development of a Web-based wildlife disease reporting system providing near real-time information on disease outbreaks at a centralized,

Example of a map available through the Wildlife Disease Information Node's Web site: <<http://wildlifedisease.nbii.gov>>.



Data shown at county level, not individual cases. October, 2002

LEGEND
■ Avian Vacuolar Myelinopathy
■ Chronic Wasting Disease
■ Chytrid Fungus in Amphibians

widely accessible location can lead to the identification of previously unrecognized wildlife-human-domestic animal disease relationships, limit further spread, and prevent future outbreaks.

The major objectives of the Wildlife Disease Information Node include:

- Documenting the prevalence and spread of wildlife diseases at the most discrete spatial and temporal levels possible via a nationwide Web-based reporting system
- Maintaining current databases on wildlife mortality events and other critical information
- Providing Web access to wildlife and zoonotic disease information for management, research, epidemiological, and educational purposes
- Providing Web access to the general public for educational purposes and to disseminate information on the importance of wildlife and zoonotic diseases and related ecosystem and community effects
- Developing partnerships to share wildlife mortality and other critical information in a distributed fashion and in a secure, partner-based data system.

The initial efforts of the WDIN will be to present data for Chronic Wasting Disease, as well as the data available on long-term wildlife mortality incident database maintained at the NWHC. This first model for the node will make data available from a collaborator group made up of potential users and data holders of CWD (see box) in an Internet- and secure, partner-based data information system, followed by CWD data from NWHC databases. Eventually, the WDIN intends to partner with additional organizations and integrate CWD data from all affected regions in North America. This effort will be the first step in the development of a full NBII Wildlife Disease Information Node, offering the opportunity to enhance existing partnerships and forge new partnerships with government, university, and private cooperators. The full node will provide access to additional, more comprehensive data sources on wildlife and zoonotic diseases, allow rapid data mining and analysis, and provide a locus for those



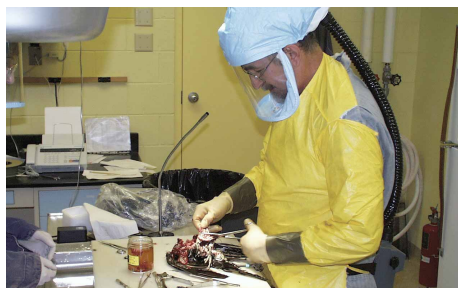
Squirrel with Fibromatosis.

(Southeastern Cooperative Wildlife Disease Study)



Infected mule deer with Chronic Wasting Disease.

(Christina Sigurdson, Colorado State University)



Post-mortem examination of an American crow for West Nile Virus.

(USGS NWHC staff)

interested in wildlife disease and the wildlife-human-domestic animal disease interface.

Products

The Wildlife Disease Information Node will provide information and links to information on wildlife health and wildlife-human-domestic animal disease interactions. The node is developing a Web-based interface that provides broad electronic access to both raw (event database) and derived (maps and other) data products, as well as a direct link to broad information on specific diseases, disease agents, and host species through a link to WILDPro, an electronic wildlife information retrieval system <www.wildlifeinformation.org>. Some additional expected products for WDIN include: (1) Real-time reporting system for verified users; (2) Historical wildlife disease information and near real-time data access to data to allow users to conduct standard, Web-based queries to include geo-

graphic queries, online mapping, and data downloads; (3) A fully distributed and accessible online system for collecting, viewing, and managing data on wildlife disease and the wildlife-human-domestic animal disease interactions; and (4) Web-accessible online mapping applications for real-time evaluation of disease clusters.

Additional contacts with various organizations are planned with the aim of publicizing the node and developing potential future partnerships. As new partnerships are developed and additional databases become available through the Wildlife Disease Information Node, managers and decision-makers will be provided with the ability to access wildlife disease data and information from distributed sources in a timely fashion for better-informed decision-making. Since migratory species know no national boundaries, the intent of the node is to eventually expand the geographic scope of this application internationally.

Current Partners

Consortium for Conservation Medicine, National Park Service (St. Croix National Scenic Riverway), Southeastern Cooperative Wildlife Disease Study, University of Wisconsin-Division of Information Technology, U.S. Fish and Wildlife Service (Horicon National Wildlife Refuge), USGS Cartographic and Publishing Program, Wildlife Information Network, Wisconsin Division of Public Health, Wisconsin Department of Natural Resources, Wisconsin Veterinary Diagnostic Laboratory, and Yale University Occupational and Environmental Medicine Program.

For More Information

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Find us on the Web at:
<<http://wildlivedisease.nbii.gov>>